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# CANADIAN PATENT

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STUDED OR SPIKED SPORTS SHOES

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No. OF CLAIMS 10

STUDDED OR SPIKED SPORTS SHOES

ABSTRACT OF THE DISCLOSURE

Sports shoes are provided with spikes which are adjustable longitudinally of the sole of the shoe prior to releasably locking in a fixed position. In this way, the relative locations of the spikes may be chosen to suit individual requirements, and may be altered at will.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A sports shoe including a sole having a plurality of projections mounted thereon; and means in said sole for mounting at least one of said projections on the sole separately and independently of the remainder of said projections, said mounting means including means for adjusting the longitudinal position of said at least one projection with respect to said sole independently with respect to the remainder of the projections; and means cooperating with said one projection for locking said projection in its adjusted position against movement during use of the shoe by the wearer.
2. The sports shoe of claim 1 wherein said projections include a threaded rod, and said mounting means includes a threaded ferrule for threadedly receiving the threaded rod of the projection.
3. The sports shoe of claim 1 wherein said mounting means includes a base fixed in the sole and having threaded holes spaced longitudinally therein, said at least one projection including a threaded rod adapted to be threadedly received in said hole, and a disc applied to the outer face of the sole and covering said base whatever the hole selected in the base to receive the threaded rod.
4. A sports shoe as claimed in claim 1, wherein the adjusting means mount at least those projecting elements on the sole which support the metatarsal bones of the foot.
5. A sports shoe as claimed in claim 1, in which each projection abuts on a disc applied to the outer face of the sole and is connected by means of a threaded rod to a base placed against the inner face of this sole, wherein the base is mounted about a pivot of the sole and integral with an eccentric piece with respect thereto, the piece passing through a curved slot in this sole centered on said pivot.

6. A sports shoe as claimed in claim 5, wherein the threaded rod is mounted in said mounting means, and projection having a threaded aperture formed therein for threadedly receiving the rod.

7. A sports shoe as claimed in claim 1, in which each projection abuts on a disc applied to the outer face of the sole and is connected by means of a threaded rod to a base placed against the inner face of this sole, wherein the base is a small lever connected to that of the transversely opposite projection by means of an axis of articulation, this lever being integral at the end with a piece passing through a curved slot in the sole centered on this axis.

8. A sports shoe as claimed in claim 1, in which each projection abuts on a disc applied to the outer face of the sole and is connected by means of a threaded rod to a base placed against the inner face of this sole, wherein the base is integral with a piece passing through a longitudinal slot in the sole and has, on the side of this piece, ridges capable of cooperating with other ridges on the inner face of this sole extending transversely.

9. A sports shoe as claimed in claim 8, wherein the disc has notches capable of cooperating with other notches made transversely in the outer face of the sole.

10. A sports shoe as claimed in claim 1 in which each projection abuts on a disc applied on the outer face of the sole and is connected by means of a threaded rod to a base placed against the inner face of this sole, wherein the base is integral with a piece passing through a longitudinal slot in the sole, the disc being provided with clips capable of penetrating into the sole.



The present invention relates to sports shoes, with studded or spiked soles, for playing rugby, football, athletics, etc .....

In the past, the studs were composed of superposed leather discs; the user used to fix them with the aid of nails onto the bare sole in a position which suited the shape of his feet and his particular tastes.

10 Now, the shoes are mass produced and their sole is obtained by moulding a plastics material. Certain studs are integral with the sole; others, metal ones for example, are attached by being screwed in threaded bases incorporated, during moulding, in the sole.

This modern production of studded or spiked sports shoes presents numerous advantages such as lightness, suppleness, comfort, tightness, whilst having an excellent resistance to shock, and wear and tear. Another advantage is that the cost price thereof is reduced.

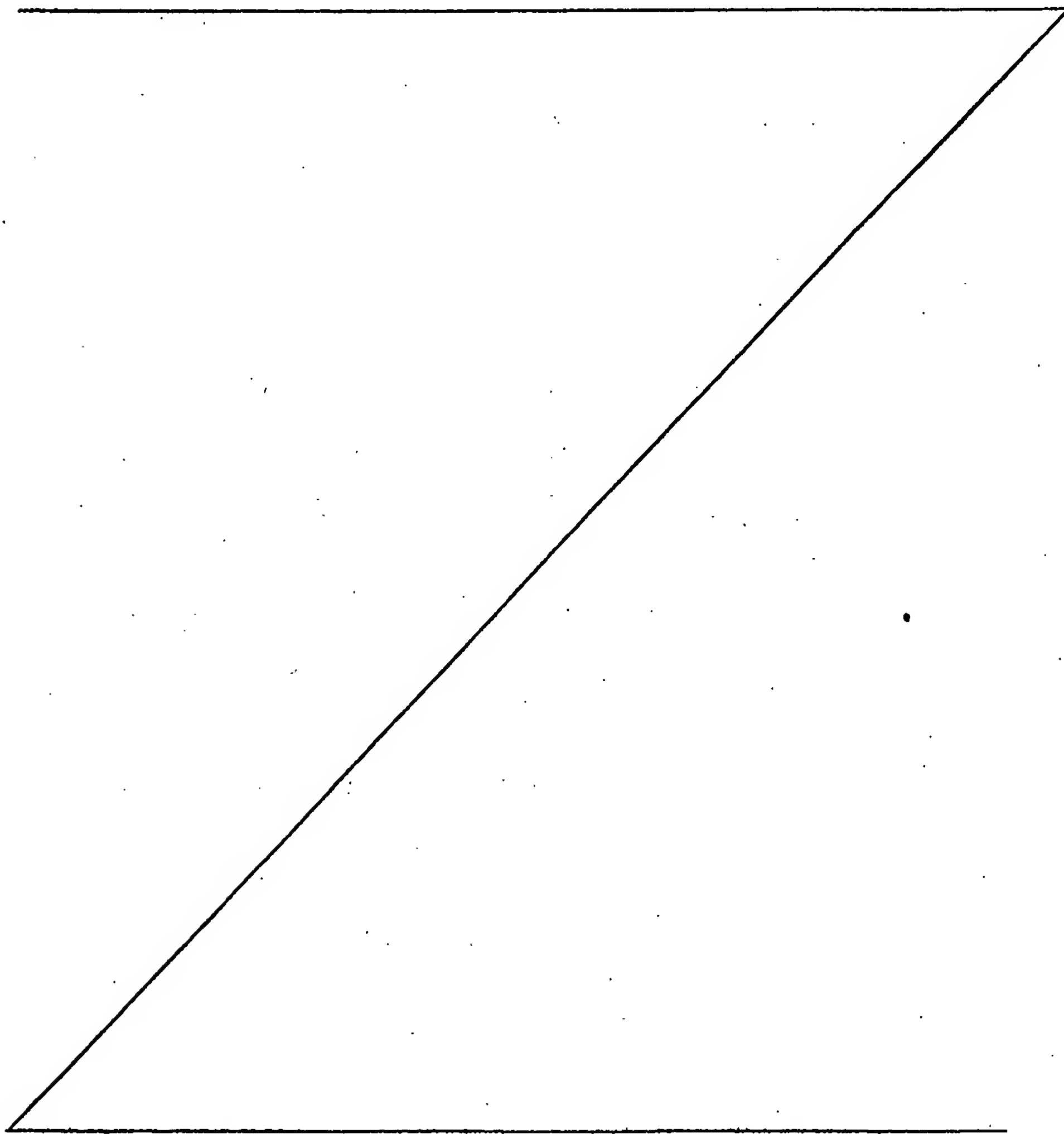
20 However, as the position of the studs or spikes is predetermined and fixed, experience has shown that, with shoes of the same size, the central studs or spikes are not located at the suitable spot for most players; only a few players among those having the same shoe size are satisfied because their metatarsal bones rest on these central studs or spikes whilst the others, whose metatarsal bones are not located precisely at that spot, have a feeling of discomfort, this leading to abnormal fatigue of the foot during the game, a loss of efficiency in effort and sometimes to a morphological deformation. Similarly, with shoes of the same size, the studs at the toe end are not located at the best spot for all players, since their position should be adapted to the particular touch of each player.

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In accordance with the present invention, there is provided a sports shoe including a sole having a plurality of projections mounted thereon; and means in the sole for mounting at least one of the projections on the sole separately and independently of the remainder of the projections, the mounting means including means for adjusting the longitudinal position of the at least one projection with respect to the sole independently with respect to the remainder of the projections; and means cooperating with the one projection for locking the projection in its adjusted position against movement during use of the shoe by the wearer.

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Thus, for a given shoe size, each player may adapt the distribution of the projecting elements to the shape of his feet, his particular touch and more generally to personal convenience and comfort. This adaptation may be corrected or modified very quickly at any moment.

5       The means recommended by the invention for obtaining the above-mentioned advantage was not obvious for several reasons. Firstly, the former and present productions have been known for a long time and, if this means had been so obvious, the man skilled in the art would have exploited it since its manufacture presented no disadvantage, particularly from the point of view of manufacture and cost price. A second reason is that, as the sole is made of relatively thin moulded plastics material and the studs or spikes are located on the side of this sole in contact with the ground, it would have seemed unlikely that these studs or spikes be movable during adjustment and then that their fixing be effected with  
10       solidity. A third reason is that, as the studs or spikes are influenced by violent forces which sometimes cause them to break, it could have been thought that the means of adjustment would tend to weaken their fixation, all the more so as the direction of this adjustment coincides with that of the forces.

According to a preferred but non-limiting embodiment, each projecting element  
20       (stud or spike) abuts on a disc applied to the outer face of the sole and is connected by means of a threaded rod to a base placed against the inner face of this sole; the base is mounted around a pivot of the sole and integral with a piece which is eccentric thereto, the piece passing through a curved slot in this sole centred on this pivot; the piece in question may be a threaded ferrule cooperating with the threaded rod which is then integral with the corresponding projecting element; in addition, it may be advantageous that the disc has notches cooperating with other notches made transversally in the outer face of the sole.  
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The invention will be more readily understood on reading the following description of several embodiments given by way of non-limiting example with reference to the accompanying drawings, in which :  
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Fig. 1 is a view from beneath of the sole showing one way of distributing the studs.

Fig. 2 is a partial transverse section, on a larger scale, along line II-II of Fig. 1.

5 Fig. 3 is a partial view from beneath of the shoe along line III-III of Fig. 2 (the disc and stud having been removed) and showing a first embodiment of the assembly according to the invention.

Fig. 4 is a view similar to Fig. 2, illustrating a second embodiment of the assembly according to the invention.

10 Fig. 5 is a partial view of the shoe, the inner lining having been removed, taken along line V-V of Fig. 4.

Figs. 6 and 7 are partial longitudinal sections, on a larger scale, along line VI-VI of Fig. 1 and showing a third embodiment and a variant of the assembly according to the invention.

15 Fig. 8 is a partial section along line VIII-VIII of Fig. 6.

Fig. 9 is a view similar to Figs. 6 and 7 illustrating a fourth embodiment of the assembly according to the invention.

Fig. 10 is a view similar to Fig. 9 concerning a fifth embodiment of the assembly of the invention.

20 Fig. 11 is a partial plan view of the shoe in the direction of arrow F of Fig. 10.

Fig. 12 is a view similar to Fig. 11 illustrating a variant.

In the sports shoe, certain elements of which have been shown in the drawings :

25 1 designates the sole which is generally made by moulding a plastics material such as that known under the name of "rilsan".

2 an insole, made of skin for example.

3 an upper whose edge is fixed by any suitable means beneath the insole which is itself applied, preferably by gluing, to the sole 1,



4 an inner lining, made of foam for example, covering the insole as well as the members incorporated therein, which are described hereinafter.

The following description relates to the assembling of studs 6 on the shoe, said studs abutting, by means of a disc 6, on the sole 1. Of course, it also  
5 applies to "spikes".

This particular assembly may be applied to all the studs, but, due to its utility, it is preferably adapted to the centre studs 5m and, subsidiarily, although not necessarily, to the front studs 5a (Fig. 1).

According to the first embodiment (Figs. 2 and 3), the means for adjusting  
10 and locking a stud comprise a circular base 7 centred on a pivot 8 integral with the upper face of the sole 1. The base 7 is housed in a recess 9 in the insole 2, which is sufficiently clear to permit it to rotate freely about pivot 8. This base has an eccentric part 10 projecting therefrom which, in the example shown, according to which the stud 5 to be fixed is integral with a threaded rod 11, is  
15 a cylindrical nut. The piece 10 passes through a curved slot 12 concentric with the pivot 8 and arranged in the sole 1. This latter comprises, finally, a boss 13 having transversely extending notches 14 capable of cooperating with other notches 15 formed under the disc 6.

In order to determine the position of the stud 5, it is sufficient to rotate  
20 the base 7 about pivot 8 until the piece 10 is located at the chosen spot in the slot 12, then to fit the disc 6 on this piece so that its notches 15 engage in those 14 of the sole, finally to screw the rod 11 into said piece 10 forming nut and to lock the stud 5.

According to the second embodiment (Figs. 4 and 5), the means for adjusting  
25 and locking two transversely opposite studs. 5.1 and 5.2 are constituted of two small flat levers 16.1 and 16.2 whose ends, located in the centre part of the sole, are articulated to one another by axis 17. These levers are housed in a very clear recess 18 in the insole and, at their free end, pieces 19.1 and 19.2 in the form of cylindrical nuts project. As before, these pieces pass through  
30 curved slots 20.1 and 20.2 made in the sole 1 concentrically to the place where

the axis 17 should be, the average direction of these slots being longitudinal.

For positioning the studs, the pieces 19.1 and 19.2 are adjusted in slots 20.1 and 20.2 by pivoting the levers 16.1 and 16.2, then the discs 6.1 and 6.2 are fitted on the threaded rods 21.1 and 21.2 of the studs 5.1, 5.2, and finally these rods are screwed in the pieces 19.1, 19.2 until locking is obtained.

The discs 6.1, 6.2 may abut directly on the sole, this also holding good for the first embodiment. However, it seems more advantageous to interpose transverse notches between sole and discs as in the first embodiment.

According to the third embodiment (Figs. 6 and 8) the sole 1 defines, at the location of each adjustable stud, a substantially rectilinear elongated slot 22 which is longitudinally oriented; a threaded piece 23 integral with a base 24 passes through this slot; the base 24 is housed in a recess 25 in the insole 2 and is wider than the slot in order to be able in particular to abut along the edges thereof; ridges 26 and 27 for hooking purposes, of complementary shape, are formed transversely in projection on the opposite faces of the sole and the base.

To mount a stud, the ridges 26 of the base are made to engage in those 27 of the sole so that the piece 23 occupies the selected position in slot 22, then after having fitted the disc 6 on the threaded rod 28, this latter is screwed into said piece 23 until the stud 5 is locked.

As before, and as may be seen in Fig. 7, transverse notches 29 and 30 may be made in the disc 6 and a boss on the outer face of the sole 1.

According to a fourth embodiment (Fig. 9), the sole 1 defines, as before, a rectilinear longitudinal slot 31 extending in the thickness of the insole 2, said slot being located where there is an adjustable stud; a base 32 in the form of a disc abuts on this insole and is integral with a threaded rod 33 passing through the slot; the disc 6 is provided with projecting clips 34 able to penetrate into the sole 1 in order to maintain the stud 5, whose position was previously ~~satisfactorily~~ in place.

To adjust a stud, the base 32 is mounted so that the threaded rod 33 occupies the selected position in the slot 31; then the disc 6 is fitted and the threaded stud 5 is screwed on this rod until the locking is obtained; during screwing, the clips 34 of the disc penetrate into the sole 1 and enable the stud to be fixed in  
5 position.

Of course, in all the embodiments illustrated in Figs. 2 to 8, the stud 5 may be threaded to cooperate with a threaded rod integral with the piece 10, 19.1, 19.2 or 23 and, inversely, in the embodiment of Fig. 9, the stud may be provided with a threaded rod in order to cooperate with a threaded piece integral with the base 32.

10 According to the fifth embodiment (Figs. 10 to 12), a metal piece 35 is inserted into the sole 1 and possibly into the insole 2 so as to be fixed therein; this piece 35 has a plurality of holes 36 which are regularly spaced out in a longitudinal direction; the holes 36 may be aligned (Fig. 11) or in fives (Fig. 12), this latter arrangement enabling the pitch of adjustment of the studs to be reduced.

15 For positioning a stud 5, it is sufficient to screw its threaded rod 37 into the threaded hole 32 which is chosen by the player and to lock the stud, by firmly applying the disc 6 on the sole 1, this disc 6 covering all the holes, whichever one is used.

The device to which the invention relates is applicable to sports shoes having  
20 studs or spikes.

FIG. 1

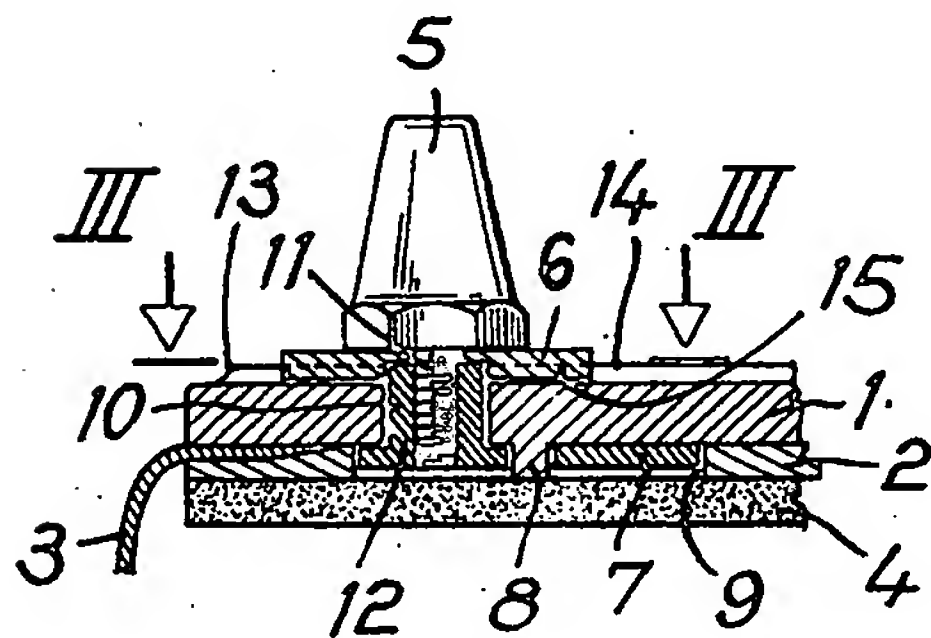
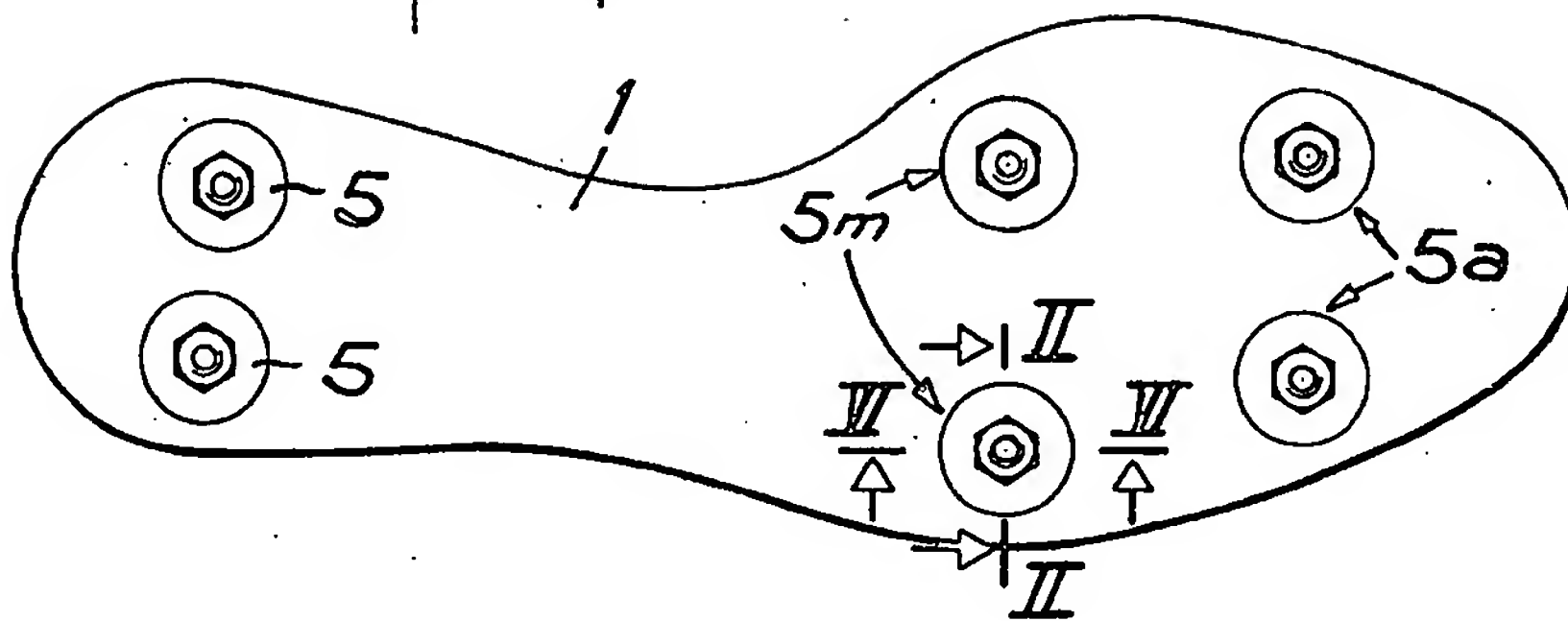


FIG. 2

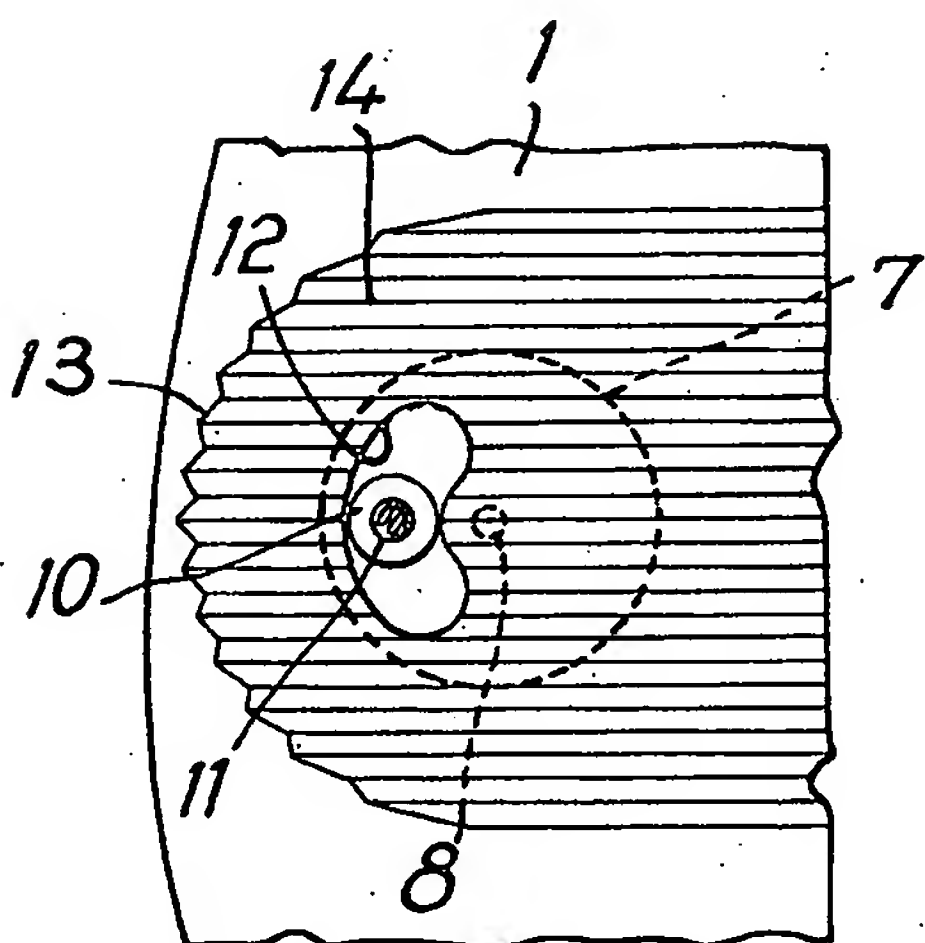


FIG. 3

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FIG. 4

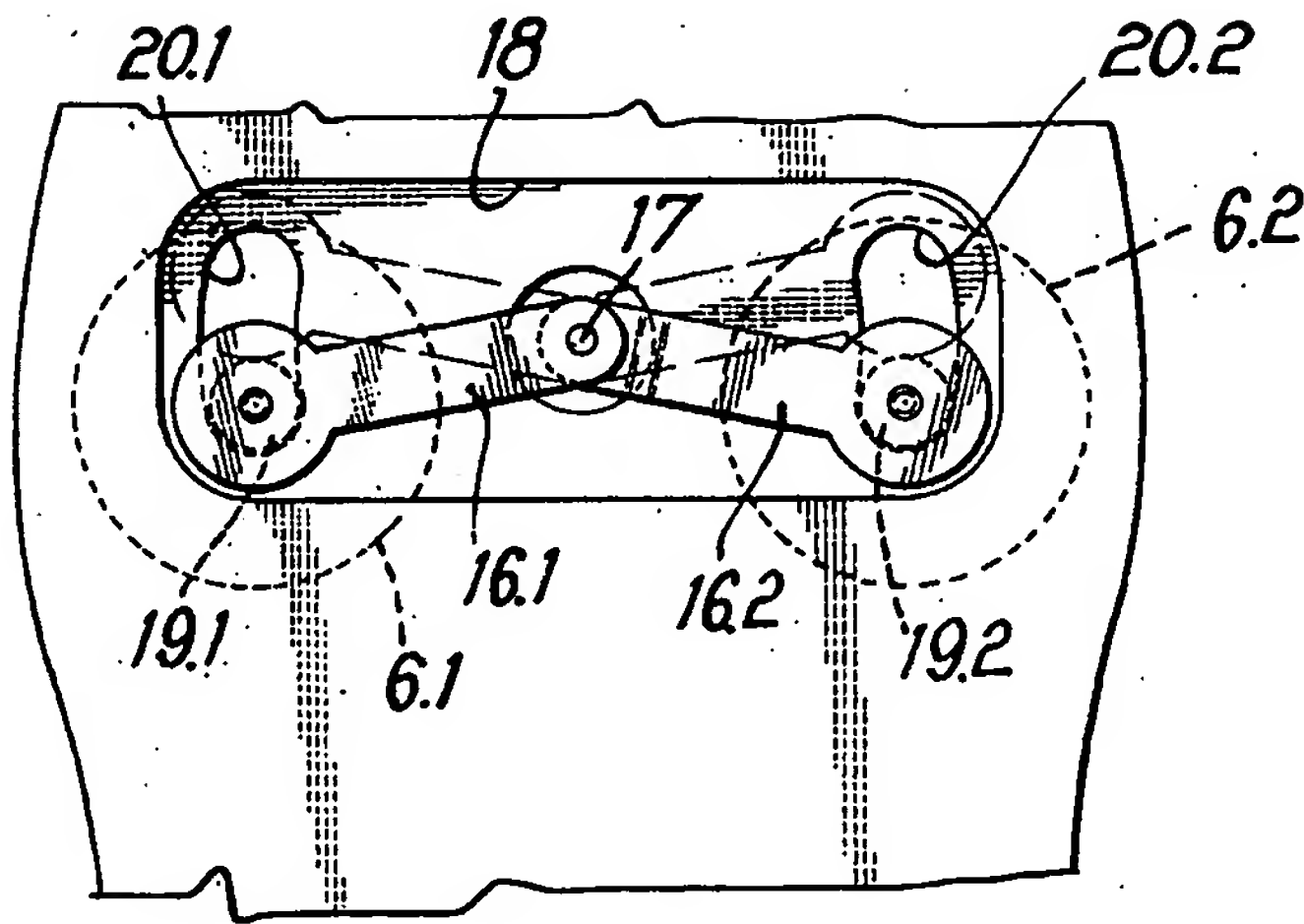
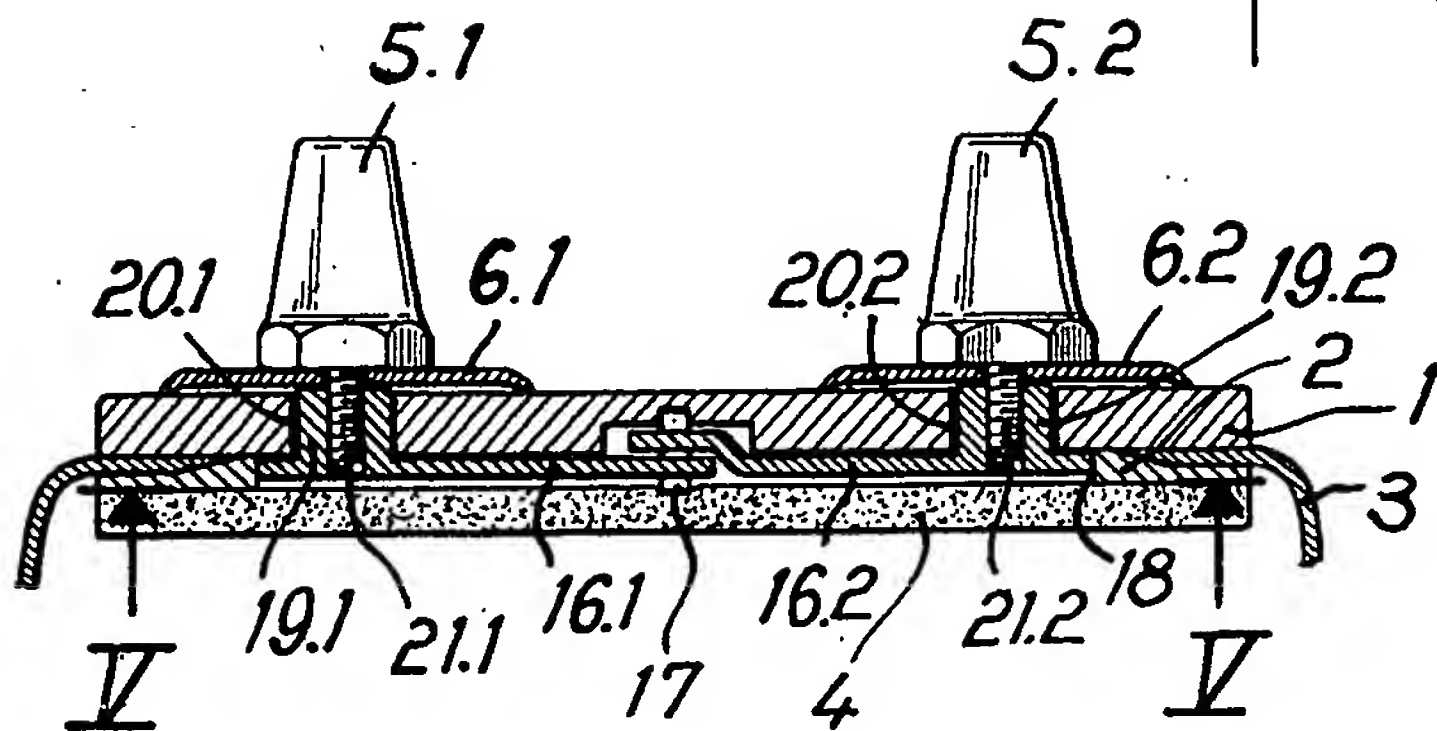
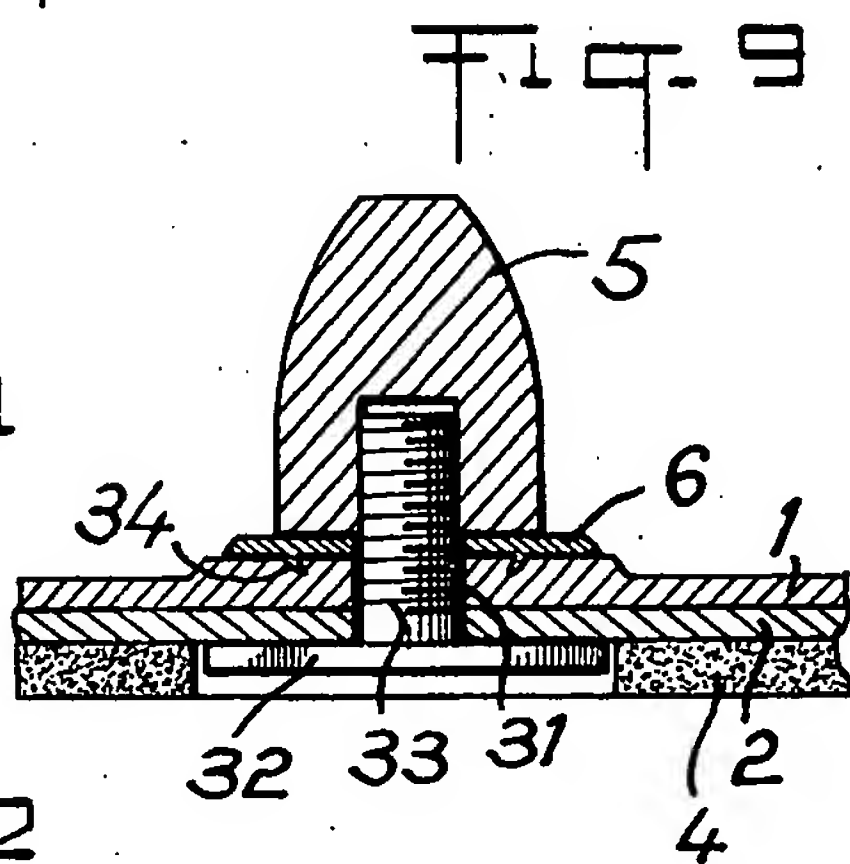
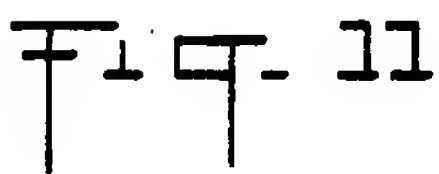
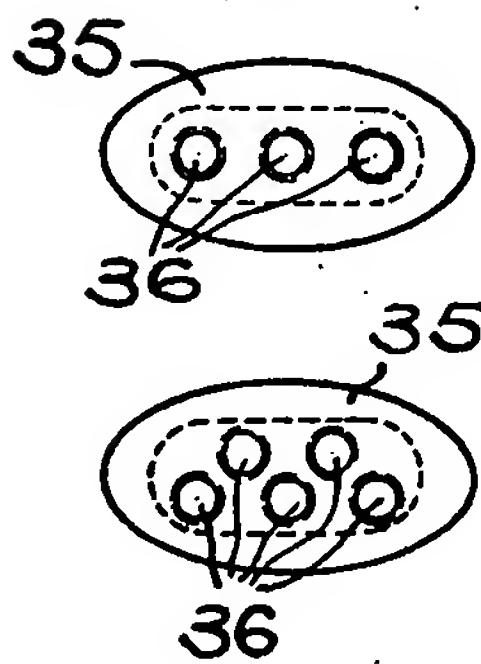
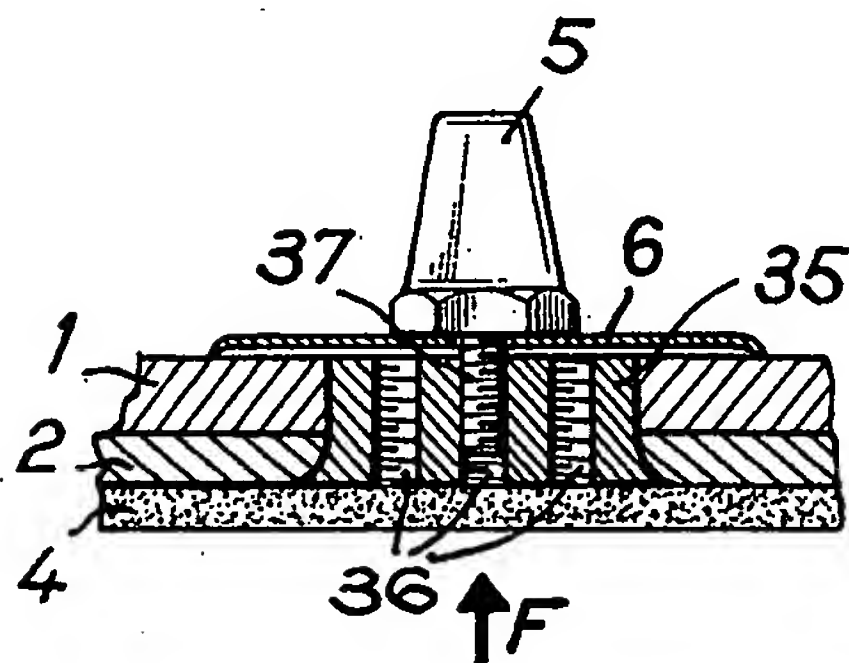
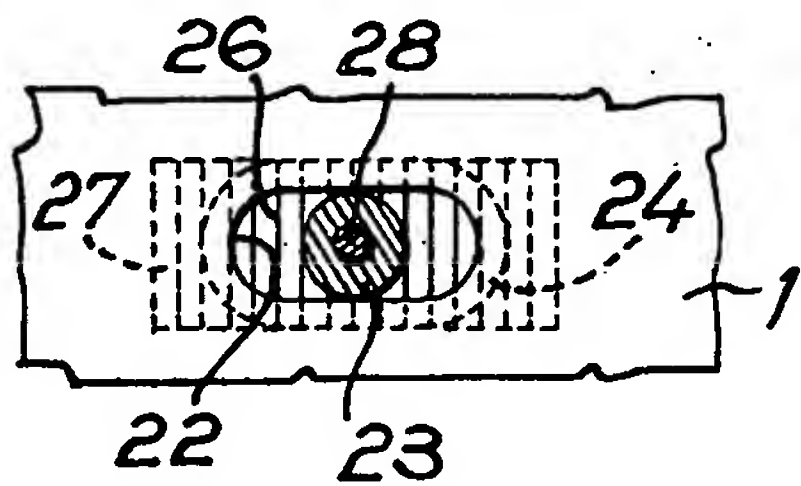
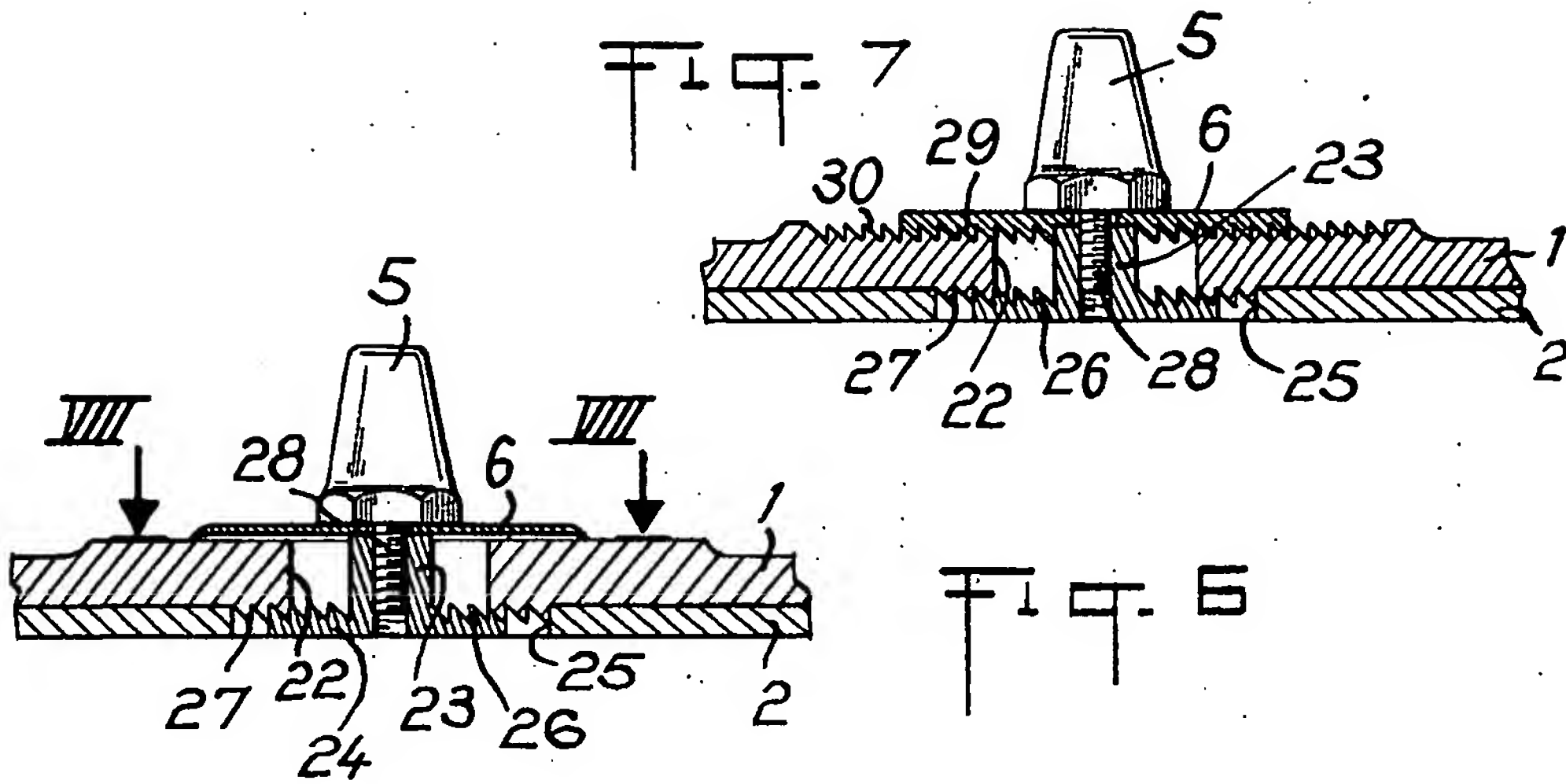


FIG. 5

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